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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,255	12/31/2003	Daniel W. Youngner	H0005200-1633(1016.116210	8554
128	7590	05/19/2006	EXAMINER BARRERA, RAMON M	
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			ART UNIT 2832	PAPER NUMBER

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/749,255

Applicant(s)

YOUNGNER, DANIEL W.

Examiner

Ramon M. Barrera

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) 8, 29 and 44-65 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 43 is/are allowed.
- 6) ☒ Claim(s) 1, 4-6, 11, 13, 14, 17-20, 22, 25-27, 33, 34, 37-40 and 42 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 7, 9, 10, 12, 15, 16, 21, 23, 24, 28, 30-32, 35, 36 and 41 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/05, 6/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 8, 29 and 44-65 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 3/7/06.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 6, 11, 13,14, 20, 22, 27, 33, 34, 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Orega Circuits (FR2402941), cited on applicant's IDS.

Orega discloses an upper actuating surface operatively coupled to an upper actuating electrode 1, said upper actuating surface including a first plurality of liquid contact regions (7,8); a lower actuating surface operatively coupled to a lower actuating electrode 2, said lower actuating surface including a second plurality of liquid contact regions spaced apart from said first plurality of liquid

contact regions, and a liquid metal 3 disposed within the space between the upper and lower actuating surfaces, said liquid metal being configured to wet with said first and second plurality of liquid contact regions to electrically actuate the switch; wherein said first and second plurality of liquid contact regions each include a pattern of liquid contact regions; further comprising a number of spacer elements 5 disposed on at least one of said first and second actuating electrodes; wherein at least one of said upper and lower actuating electrodes includes a custom sloped surface 5; wherein each of said upper and lower actuating surfaces includes a leading surface and a trailing surface; comprising an upper and lower actuating electrode each including one or more metal layers 7 coupled to a base layer 6.

4. Claims 18,19, 38, 39, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Orega Circuits and Julie.

Orega was silent with regards to heating means for heating said upper and lower actuating surfaces; wherein said heating means includes one or more heater elements arranged about the upper and/or lower actuating surfaces. Julie discloses heating means inherent in reed relays (col. 1, lines 36-43), which the examiner deems is also inherent in Orega.

5. Claims 1, 6, 11, 13, 14, 18,19, 20, 22, 27, 33, 34, 38, 39, 40, 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Wong, et al(US6743991).

Wong discloses an upper actuating surface operatively coupled to an upper actuating electrode (406,116,408), said upper actuating surface including a first

plurality of liquid contact regions; a lower actuating surface operatively coupled to a lower actuating electrode (504,130,502), said lower actuating surface including a second plurality of liquid contact regions spaced apart from said first plurality of liquid contact regions, and a liquid metal (506,508) disposed within the space between the upper and lower actuating surfaces, said liquid metal being configured to wet with said first and second plurality of liquid contact regions to electrically actuate the switch; wherein said first and second plurality of liquid contact regions each include a pattern of liquid contact regions; further comprising a number of spacer elements (104,126) disposed on at least one of said first and second actuating electrodes; wherein at least one of said upper and lower actuating electrodes includes a custom sloped surface (104,114); wherein each of said upper and lower actuating surfaces includes a leading surface and a trailing surface; comprising an upper and lower actuating electrode each including one or more metal layers (406,504) coupled to a base layer(102,120); further comprising heating means (304,702) for heating said upper and lower actuating surfaces; wherein said heating means includes one or more heater elements arranged about the upper and/or lower actuating surfaces.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orega Circuits, cited above, and further in view of Yamaguchi, et al.

Orega Circuits disclosed employing a wettable contact region 5, but did not disclose the contact region made of platinum. Yamaguchi shows that a wettable contact region 11 made of platinum is an equivalent structure known in the art. Therefore, because these two contact wetting materials were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to employ platinum as the material of the wettable contact in Orega Circuits.

8. Claims 5 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orega Circuits, cited above, and further in view of Korn.

Orega Circuits disclosed employing mercury, but did not disclose the use of gallium. Korn discloses that gallium is an equivalent material known in the art (col. 1, lines 35-36). Therefore, because these two materials were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to employ gallium instead of mercury.

9. Claims 17 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orega Circuits, cited above, and further in view of Walsh.

Orega Circuits did not disclose the use of argon gas in the inherently hermetically sealed envelope of the relay. Walsh discloses that argon is a material known in the art (col. 3, line 36). Therefore, because this material was an art-recognized material at the

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time the invention was made, one of ordinary skill in the art would have found it obvious to employ argon gas in Orega's relay.

10. Claims 4 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong, cited above, and further in view of Dove, et al.

Wong disclosed employing wettable contact regions (406,504, etc.), but did not disclose the contact region made of platinum. Dove shows that a wettable contact region (82,85) made of platinum (col.9, line 32) was known in the art. Therefore, one of ordinary skill in the art would have found it obvious to employ platinum as the material of the wettable contact in Wong.

11. Claims 5 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong, cited above, and further in view of Wong (US6924443) .

Wong '991 disclosed employing mercury, but did not disclose the use of gallium. Wong '443 discloses that gallium is an equivalent material known in the art (col. 2, line 9). Therefore, because these two materials were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to employ gallium instead of mercury.

12. Claims 17 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong '991, cited above, and further in view of Wong '507.

Wong '991 did not disclose the use of argon gas in the switching cavity of the switch. Wong '507 discloses that argon is a substance useable as a fluid nonconductor in the switching cavity of a liquid metal switch. Therefore, because at the time the

invention was made this substance was an art-recognized material useable as the fluid nonconductor in the switching cavity of a liquid metal switch, one of ordinary skill in the art would have found it obvious to employ argon gas as a fluid nonconductor in Wong's '991 switch.

***Allowable Subject Matter***

13. Claim 43 is allowed.
14. Claims 2,3,7,9,10,12,15,16,21,23,24,28,30,31,32,35,36, and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
15. The following is a statement of reasons for the indication of allowable subject matter: None of the prior art of record taught or disclosed wherein each of said first and second plurality of liquid contact regions are arranged in increasing size from an outer periphery of said upper and lower actuating surfaces to an inner portion thereof.

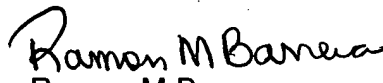
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramon M. Barrera whose telephone number is (571) 272-1987. The examiner can normally be reached on Monday through Friday from 11 to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Ramon M Barrera  
Primary Examiner  
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rmb